



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0328; Directorate Identifier 2014-NE-07-AD; Amendment 39-18108; AD 2015-04-06]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Rolls-Royce plc (RR) RB211 Trent 875-17, 877-17, 884-17, 884B-17, 892-17, 892B-17, and 895-17 turbofan engines. This AD requires modification of the engine by installing upgraded software in the electronic engine control (EEC) or by removing any EEC that incorporates a software standard prior to B7.2 and installing an EEC eligible for installation. This AD was prompted by failure of the intermediate pressure (IP) turbine disk drive arm and subsequent overspeed and burst of the IP turbine disk on an RR RB211 Trent turbofan engine. We are issuing this AD to prevent overspeed of the IP turbine disk, resulting in failure of the turbine blades or the IP turbine disk and subsequent uncontained release of the turbine disk and/or blades, which could lead to damage to the engine and damage to the airplane.

DATES: This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this AD, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE24 8BJ; phone: 011-44-1332-242424; fax: 011-44-1332-249936; email: http://www.rolls-royce.com/contact/civil_team.jsp; Internet: <https://www.aeromanager.com>. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0328; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the mandatory continuing airworthiness information (MCAI), the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Wego Wang, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7134; fax: 781-238-7199; email: wego.wang@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to the specified products. The NPRM was published in the *Federal Register* on July 11, 2014 (79 FR 40018). The NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

A Trent engine experienced an engine internal fire, caused by combustion of carbon deposits inside the high/intermediate (HP/IP) oil vent tubes. The consequent chain of events resulted in the failure of the IP turbine disk drive arm. Similar engine architecture exists on Trent 800 series engines.

This condition, if not corrected, could lead to uncontained multiple turbine blade failures or an IP turbine disk burst, possibly resulting in damage to, and reduced control of, the aeroplane.

Prompted by these findings, an Intermediate Pressure Turbine Overspeed System (IPTOS) protection scheme has been developed for Trent 800 engines installed on Boeing 777 aeroplanes.

For the reasons described above, this AD requires introduction of the IPTOS protection function by installation of a new software standard (B7.2) in the engine electronic controller (EEC), which will protect against IP turbine overspeed when IP shaft failure is detected.

Since we issued the NPRM (79 FR 40018, July 11, 2014), we issued a supplemental NPRM (79 FR 70475, November 26, 2014) to amend the costs of compliance and to more clearly state certain compliance requirements. Since we issued the supplemental NPRM, we changed paragraph (e) of this AD for clarity.

Comments

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

Request to Modify the Installation Prohibition Paragraph

American Airlines (AA) requested that we modify the Installation Prohibition paragraph (f) to allow installation of an EEC with a software standard earlier than B7.2, and coincident on-wing upgrade of the software standard to B7.2 or later, but prohibit operation of an engine that incorporates a software standard earlier than B7.2. AA states that the EEC original equipment manufacturer does not update the software as part of a component shop visit.

We agree. We modified the Installation Prohibition paragraph (f) to allow installation of an EEC with a software standard earlier than B7.2, but to prohibit operation of an engine with a software standard earlier than B7.2.

Conclusion

We reviewed the available data, including the comment received, and determined that air safety and the public interest require adopting this AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Costs of Compliance

We estimate that this AD affects about 140 engines installed on airplanes of U.S. registry. We also estimate that it would take about 2 hours per engine to comply with this AD. The average labor rate is \$85 per hour. Based on these figures, we estimate the cost of this AD on U.S. operators to be \$23,800.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

“Subtitle VII: Aviation Programs,” describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in “Subtitle VII, Part A, Subpart III, Section 44701: General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

2015-04-06 **Rolls-Royce plc Turbofan Engines:** Amendment 39-18108; Docket No. FAA-2014-0328; Directorate Identifier 2014-NE-07-AD.

(a) Effective Date

This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Rolls-Royce plc (RR) RB211 Trent 875-17, 877-17, 884-17, 884B-17, 892-17, 892B-17, and 895-17 turbofan engines.

(d) Reason

This AD was prompted by failure of the intermediate pressure (IP) turbine disk drive arm and subsequent overspeed and burst of the IP turbine disk on an RR RB211 Trent turbofan engine. We are issuing this AD to prevent overspeed of the IP turbine disk, resulting in failure of the turbine blades or the IP turbine disk and subsequent uncontained release of the turbine disk and/or blades, which could lead to damage to the engine and damage to the airplane.

(e) Actions and Compliance

Twelve months after the effective date of this AD, do not operate any engine with an electronic engine control (EEC) software standard earlier than B7.2.

(f) Installation Prohibition

After removing any software standard earlier than B7.2 from an ECC on any engine, do not operate that engine with any software standard earlier than B7.2.

(g) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs to this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(h) Related Information

(1) For more information about this AD, contact Wego Wang, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7134; fax: 781-238-7199; email: wego.wang@faa.gov.

(2) Refer to MCAI European Aviation Safety Agency AD 2014-0051, dated March 6, 2014, for more information. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2014-0328-0003>.

(3) RR Alert Service Bulletin No. RB.211-73-AH001, dated July 17, 2013, which is not incorporated by reference in this AD, can be obtained from Rolls-Royce plc, using the contact information in paragraph (h)(4) of this AD.

(4) For service information identified in this AD, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE24 8BJ; phone: 011-44-1332-242424; fax: 011-44-1332-249936; email: http://www.rolls-royce.com/contact/civil_team.jsp; or Internet: <https://www.aeromanager.com>.

(5) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(i) Material Incorporated by Reference

None.

Issued in Burlington, Massachusetts, on February 19, 2015.

Colleen M. D'Alessandro,
Assistant Directorate Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

[FR Doc. 2015-04044 Filed 03/03/2015 at 8:45 am; Publication Date: 03/04/2015]